AUTHOR: Borgardt, A. A. 48-22-3-10/30

TITLE: Orientational Polarization of the Dipole Gases, Solutions and Liquids Taking into Account the Inner Field (Oriyentatsionnaya polyarizatsiya dipol'nykh gazov, rastvorov i zhidkostey s uchetom vnutrennego polya)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958 Vol. 22, Nr 3, pp. 268-273 (USSR)

ABSTRACT: The fundamental idea the development of which made it possible to establish the first theory of polarization which was able to stand a comparison with the experiment, was the idea on the inner field in the liquid (Ref 1 and 2) developed by Debye. A similar test was also carried out in the works by the author of this lecture and by B. N. Finkel'shteyn (Ref 3 to 5). The incorrect neglecting of $\langle \cos\vartheta \rangle_\vartheta$ admitted in the theory developed by Debye, was disclosed by A. I. Ansel'm (Ref 6) The calculation of $\langle \cos\vartheta \rangle_\vartheta$ which was based on the fact that the inner basic field is formed by the nearest neighbor of the investigated molecule (Ref 4), corrects this error. The most essential problem for the whole theory is the way of distribution of W(F) or W(f). As first approximation, this problem may

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be formulated as Markov's task. The influence of the external field on the distribution of the interior one is unimportant at all, at least in the case of the investigated approximation of orientational-with respect to linear polarization. The taking account of the elastic polarization of the molecules by the inner field seems to be essential. The formula: $\langle \cos \vartheta \rangle = L(\alpha f)$ is inaccurate and must be replaced by a new one. On the strength of the calculations the author obtained for $\langle \cos \vartheta \rangle$ which satisfies all fundamental properties and which may be applied in theory:

$$\langle \cos \vartheta \rangle \longrightarrow 0 \quad \text{at } \alpha \longrightarrow 0,$$
$$\langle \cos \vartheta \rangle \longrightarrow 1 \quad \text{at } \alpha \longrightarrow \infty$$
$$\langle \cos \vartheta \rangle \longrightarrow L(\alpha f) \quad \text{at } f \longrightarrow 0.$$

With respect to the assumption that all dipoles, among which there are also those in closest vicinity, are oriented quite at random, it holds that the mere random distribution of the dipoles seems to be justified only with pure liquids at $\alpha \leqslant 1,4$ The situation with solutions with unpolar solvents where the dielectric constant of the solvent reduces the interaction and consequently also the correlation, is more favorable. A com-

Orientational Polarization of the Dipole Gases, Solutions and Liquids Taking into Account the Inner Field 48-22-3-10/30

parison of the theory with the experiment was carried out for some dozens of pure polar liquids (Ref 12) and shows that a conformity is observed even up to $\alpha \approx 5$. This is explained by the following reasons: a) the correlation of direction of the nearest neighbors is disturbed to a high extent by the heat motion; b) the molecules amongst which the correlation of direction is so intense that they practically ought to be considered as binary systems, do not cease with the formation of the inner field. The application of the theory with solutions of the dipole liquids in non-polar solvents yields the most favorable results (Ref 5). Therefore, more accurate calculations were carried out here without changing the fundamental positions: the volume of the molecules and its influence on polarization were taken into account. There are 17 references, 10 of which are Soviet.

ASSOCIATION: Dnepropetrovskiy gos.universitet (Dnepropetrovsk State University)

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Card 3/3

1. Gases--Polarization 2. Liquids--Polarization

BORGARDT, A.A.

AUTHORS: Odelevskiy, V. I., Tonkonogov, M. P., Fradkina, E. M., Skanavi, G. I., Borgardt, A. A. 48-22-3-11/30

TITLE: Discussions on the Report Submitted by A. A. Borgardt (Preniya po dokladu A. A. Borgardt)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, 1958 Vol. 22, Nr 3, pp. 273-275 (USSR)

ABSTRACT: V. I. Odelevskiy is of the opinion that the theory developed by Debye, which was introduced in 1935, was contested by Ansel'm already at that time. Since then the attempt has repeatedly been made to improve this insufficient theory. The lecture delivered by Borgardt was also devoted to this subject. The fundamental error of this theory with all its modifications (Ref 1,4 to 6) consists in the wrong idea formed of the influence of the so-called "mollecular field" on dipole-polarization. The "inner field" and the energy U influence polarization: The higher U is, the lower is the corresponding polarization. However, the polarization of the elastic rotation of the dipoles in comparison with normal thermal orientational polarization is extremely low and forms only a fraction of a per cent of the latter. The confusion of these two kinds of polarization caused the errors committ-

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ed by Debye and his successors. The complication and "perfection" of the calculation-apparatus of the theory dealt with does not alter the fact in the works by Borgardt and Finkel'shteyn that the physical conceptions on which the theory is based are wrong and that the theory itself is consequently wrong, too. M. P. Tonkonogov says that a difference should be made between the raising of the problem by Borgardt which is absolutely correct, and the solution which represents an extremely rough approximation. Borgardt solves the problem of the calculation of the molecular field more logically and rigorosly than Ansel'm. There is no reason, therefore, to reproach the author for any incorrectness in raising the problem. The solution of the problem is, however, very poor. Yet it is valuable that the calculation of the dielectric constant contains no undetermined parameters.- E. M. Fradkina says that she raises no objection against the theory developed by Borgardt. Concerning the criticism by Odelevskiy, she is of the opinion that the latter believes that the theory developed by Kirkvud is the only correct one. G. I. Skanavi says: The criticism by Odelevskiy is based on the firm conviction that th interaction of molecules cannot change their polarizability. This does not seem to be fully substantiated. A. A. Borgardt: The assertion based on the work by

Discussions on the Report Submitted by A. A. Borgardt 48-22-3-11/30

Ansel'm (Ref 2) that the new theory developed by Debye is completely wrong, does not correspond with facts. When carefully reading the work by Ansel'm it may be realized that he has not criticized the conception of theinner field in itself but only the assumption of its isotropy. Other works (Ref 4 to 6) are just based on the variant of the theory developed by Debye, improved by Ansel'm. The model referred to by Odelevskiy, has, according to the author's opinion, no immediate relation with the discussed problem. He says that the effect of the inner field on the polarization of a dipole-matter is the consequence of a " stochastic" model and of elementary electro-dynamical conceptions. As to the theory developed by Kirkvud, theinner field really is lacking. An effective dipole-moment, which deals with the same conceptions from another standpoint, exists however. The advantage of our theory, the lecturer says, consists in the lack of random parameters which are found in the theory developed by Kirkvud. There are 1 figure, and 7 references, 6 of which are Soviet.

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Card 3/3 1. Gases--Polarization 2. Liquids--Polarization

AUTHOR: Borgardt, A. A. SOV/56-34-5-41/61

TITLE: Photon Wave Equations (Volnovyye uravneniya fotona)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 5, pp. 1323-1325 (USSR)

ABSTRACT: The methods used at present for the treatment of the electromagnetic field in some cases do not permit to investigate the interaction of photons with other fields by the methods of quantum theory. These problems include, for example, the wide field of electromagnetic-gravitation interaction: Scattering of a gravitan at a photon, bremsstrahlung-like emission of a graviton by a photon etc. For the solution of such problems a matrix-like photon wave equation (which is regarded to be a particle) must be formulated. The main difficulty in the formulation of the matrix theory of the photon field is the absence of an eigen mass and the subdivision of the wave functions into potentials and field strengths, which considerably complicates the application of the Kammer (Kemmer) formalism. The application of the Dirac (Dirak) algebra (Ref 3) removes these difficulties and gives a theory of the photon in perfect analogy with the theory by Lee (Li) and

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Yang (Ref 4) for the fermions with a zero mass. In a previous paper (Ref 5) the author shows a concrete method for tracing back the 16-rowed reducible representation of the Kemmer algebra to 8- and 4-row representations of the Dirac algebra. As a wave function of the photons the half-undor Ψ is used; it comprises $\vec{E}$, $\vec{H}$, and 2 new quantities, the scalar ψ and the pseudoscalar $\tilde{\psi}$. By means of the 8-row Dirac (Dirak) the wave equation of the free field can be written down in the form $(\vec{\alpha}, \nabla + \partial/c\partial t)\Psi(\vec{x}, t) = 0$ $(\vec{\alpha}^*, \nabla + \partial/c\partial t)\Psi^*(\vec{x}, t) = 0$, where $1/2 \left\{\alpha_i \alpha_k\right\} - \delta_{ik} I = 1/2 \left\{\alpha_i^* \alpha_k^*\right\} - \delta_{ik} I = \left[\alpha_i \alpha_k\right] = 0$. The matrix α_L / L has the properties $\left[\alpha_L \alpha_i\right] = \left[\alpha_L \alpha_i^*\right] = \left[\alpha_i \alpha_L\right] = 0$ $\alpha_L^2 = I$ and defines a Larmor transformation for $\Psi : \Psi' = \alpha_L \Psi$. For α_L the explicit expression $\alpha_L = i\alpha_1\alpha_2\alpha_3 = i\alpha_1^*\alpha_2^*\alpha_3^*$ is obtained. The two equations presented initially are invariant with regard to a Larmor transformation. The Larmor photons can, even in the case of the longitudinal polarization, have different parity and the spin $\hbar$. The two initially given wave equations are obtained from the Lagrangian $L \sim \bar{\Psi}(\vec{\alpha}, \nabla + \partial/c\partial t)\Psi$. The commutation rules are defined in the usual form: $\left[\Psi(\vec{x}, t)\, \bar{\Psi}(\vec{x}', t')\right] = iS(\vec{x} - \vec{x}', t - t')$. The

theory of the photons is essentially three-dimensional, as well as the theory of the neutrino. The interaction of the photons with the field of gravitation is described by the equation $\gamma_\lambda \partial\varphi / \partial x_\lambda = 0$ or $\beta_\lambda \partial\varphi / \partial x_\lambda$, where $\varphi(x) =$ $= (I + g\gamma_\mu \gamma_\nu^* h_{\mu\nu}(x))\psi(x)$. $h_{\mu\nu}$ denotes the gravitation potential. There are 11 references, 4 of which are Soviet.

ASSOCIATION: Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University)

SUBMITTED: December 19, 1957 (initially) and February 12, 1958 (after revision)

1. Photons--Theory 2. Electromagnetic fields--Properties
3. Bremstrahlung 4. Mathematics--Applications

AUTHOR: Borgardt, A. A. SOV/56-34-6-34/51

TITLE: The Derivation of the Exact Non-Linear Equations of the Gravitation for a Special Case on the Basis of Birkhoff's Theorem (Polucheniye tochnykh nelineynykh uravneniy tyagoteniya dlya odnogo chastnogo sluchaya na osnove teorii Birkkhoffa)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 34, Nr 6, pp 1632-1633 (USSR)

ABSTRACT: Birkhoff (Birkkhoff)'s linear theory of the gravitation (in contrast to the general theory of relativity) is based on the assumptions of modern field theory. As the general theory of relativity, it predicts some observable effects (the deflection of light in the gravitation field, the red shift and the motion of the perihelium) in good accordance with the experimental data. The author chooses the following equations as initial ones:

$$\partial h_{\mu[\nu\lambda]}/\partial x_\lambda = -\alpha T_{\mu\nu}; \quad (\alpha = G/c^4);$$

$$\partial h_{\lambda[\nu\rho]}/\partial x_\mu + \partial h_{\lambda[\rho\mu]}/\partial x_\nu + \partial h_{[\mu\nu]}/\partial x_\rho = 0$$

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$T_{\mu\nu}$ denotes the symmetrized (simmetrizovat') energy-momentum tensor of the gravitating matter. The second one of the above mentioned equations may be replaced by equivalent equations for the potentials $h_{\mu\nu}$. $h_{\mu[\nu\rho]} = \partial h_{\mu\rho}/\partial x_\nu - \partial h_{\mu\nu}/\partial x_\rho$. From the above mentioned equation follows an equation for the potentials

$$\Box^2 h_{\mu\nu} = \alpha T_{\mu\nu}$$

if an additional conditicn (of the same type as the Lorentz (Lorentts) condition) is taken into account. This theory is a good approximation under the usual conditions. But, nevertheless, it remains to be an approximation as the field $h_{\mu\nu}$ itself has energy and momentum which produce gravitation. This inherent non-linearity of the gravitation field can be taken into account only with the method of the disturbation theory as long as the exact non-linear equations are unknown. The author does not try to regard the Birkhoff (Birkkhoff) theory as a special case of the general theory of relativity for a weakly curved space.

The Derivation of the Exact Non-Linear Equations of the Gravitation for a Special Case on the Basis of Birkhoff's Theorem

SOV/56-34-6-34/51

In the special case of static fields of the masses the infinite expansions of the perturbation theory may be reduced to a closed form. This procedure leads to the exact non-linear equations of thegeneralized Birkhoff (Birkkhoff) theory. If there is no external $T_{\mu\nu}$, the equations $\Box^2 h_{\mu\nu} = \alpha T_{\mu\nu}$ can be derived from the linear Lagrangian $\mathfrak{L}_L = -1/4\,\delta_{\lambda\sigma}(\partial h_{\rho\tau}/\partial x_\lambda)(\partial h_{\rho\tau}/\partial x_\sigma)$. The Lagrangian of the non-linear field must have the form $\mathfrak{L}_{NL} = \mathfrak{L}_L + (\alpha/2) h_{\lambda\sigma} T^{(NL)}_{\lambda\sigma}$, where $T^{(NL)}_{\mu\nu}$ denotes the unknown energy-momentum tensor of the non-linear gravitation field. It may be defined by the unknown Lagrangian $\mathfrak{L}_{NL}$. This Lagrangian $\mathfrak{L}_{NL}$ may be expanded into the series $\mathfrak{L}_{NL} = \mathfrak{L}_L + (\alpha/2)\mathfrak{L}_1 + (\alpha/2)^2\mathfrak{L}_2 + \ldots$. The expressions for $\mathfrak{L}_k$ are given and then follows $\mathfrak{L}_{NL} = -1/4\, a_{\lambda\sigma}(h_{\mu\nu})(\partial h_{\rho\tau}/\partial x_\lambda)(\rho h_{\rho\tau}/\partial x_\sigma)$, where $a_{\mu\nu}$ denotes a series.

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In the case of fields, which are produced by masses, there is

The Derivation of the Exact Non-Linear Equations SOV/56-34-6-34/51
of the Gravitation for the Special Case on the Basis of Birkhoff's Theorem

$h_{\mu\nu} = h\,\delta_{\mu\nu}$, $h_{\mu[\nu\rho]} = (\delta_{\mu\rho}\delta_{\nu\lambda} - \delta_{\mu\nu}\delta_{\rho\lambda})\partial h/\partial x_\lambda$, and every series may be summed up. At least an equation is given and solved for the static gravitation field. This equation takes into account the self-action and its solution always will be a function of the linear solution. There are 5 references, 1 of which is Soviet.

ASSOCIATION: Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University)

SUBMITTED: December 16, 1957

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Borgardt, N.

21(1,8); 24(5) P.2 PHASE I BOOK EXPLOITATION SOV/3369

Vsesoyuznaya mezhvuzovskaya konferentsiya po kvantovoy teorii poley i teorii elementarnykh chastits. Uzhgorod, 1958

Problemy sovremennoy teorii elementarnykh chastits. No. 2: Trudy konferentsii... (Problems in the Modern Theory of Elementary Particles. Nr. 2: Transactions of the All-Union Inter-Vuz Conference on the Quantum Field Theory and the Theory of Elementary Particles) Uzhgorod, Zakarpatskoye oblastnoye izd-vo, 1959. 214 p. 5,000 copies printed.

Ed.: Yu. Lomsadze, Docent; Tech. Ed.: M. Belous.

PURPOSE: This book is intended for physicists, particularly those concerned with problems in the field of elementary particles and the quantum theory.

COVERAGE: This book contains articles on elementary particles originally read at the All-Union Inter-Vuz Conference held at Uzhgorod State University on October 26, 1958. Among the topics

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discussed are: the spinor field theory, the fusion theory, Lorentz contractions, parity studies, nucleon-nucleon scattering, etc. English abstracts accompany each article. References follow each article.

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24 (5)

AUTHOR: Borgardt, A. A. SOV/56-36-6-45/66

TITLE: Dynamic Principle for Equations of Second Order (Dinamicheskiy printsip dlya uravneniy vtorogo poryadka)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, [illegible], Nr 6, pp 1928 - 1929 (USSR)

ABSTRACT: In his lecture on "Wave Equations of Second Order for Spin Wave Functions" delivered at the Uzhgorod Conference on the Theory of Elementary Particles (October 1958) V. Vanyashin suggested a new method for the development of a quantum theory of spin fields, which is based upon equations of the second order. This method offers the possibility of correctly describing processes in which spin particles participate. The theory is characterized by unusual rules of commutation for the spin wave functions. The author of the present "Letter to the Editor" shows that the use of Schwinger's dynamic principle supplies homogeneous commutation rules for fermion- and boson fields for a system with a Lagrangian of second order. This applies also to fields with higher derivatives - Lagrangians of odd order lead to an anticommutativity of spinors, Lagrangians of even order lead to commutativity. The author uses the Lagrangian of the

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form $\mathcal{L}(x) = (1/2m)\,\partial_\mu \chi(x)\alpha_\mu\alpha_\nu\partial_\nu\chi(x) - \mathcal{H}(\chi(x))$ (all denotations are taken from Schwinger (Ref 1)) and shows that the same commutation rule holds both for Dirac- and Kemmer algebra; for arbitrary points x and x' $\left[\chi_\alpha(x),\chi_\beta(x')\right] = i\delta_{\alpha\beta}\Delta(x-x')$ is obtained. A generalization of this result for charge fields is easily possible. There is 1 reference.

ASSOCIATION: Dnepropetrovskiy gosudarstvennyy universitet (Dnepropetrovsk State University)

SUBMITTED: February 9, 1959

BORGARDT, A.A.

Steady states in Volterra's model. Biofizika, 7 no.2:121-124 '62.
(MIRA 16:8)

1. Dnepropetrovskiy gosudarstvennyy universitet.
(BIOPHYSICS) (MATHEMATICAL STATISTICS)

BORGARDT, A.A.

Relativistically invariant transformations in wave function space. Zhur. eksp. i teor. fiz. 45 no.2:116-122 Ag '63. (MIRA 16:9)

1. Dnepropetrovskiy gosudarstvennyy universitet.
(Transformations (Mathematics)) (Wave functions)

L 16897-63 EWT(l)/EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3005256 S/0056/63/045/002/0123/0127

54
53

AUTHOR: Borgardt, A. A. 19

TITLE: Transverse and longitudinal states of Boson fields and dibaric particles 19

SOURCE: Zhur. eksper. i teoret. fiz., v. 45, no. 2, 1963, 123-127

TOPIC TAGS: Klein equation , Kemmer equation , boson field , longitudinal state , transverse state , dibaric particle , undor , Hermitian representation

ABSTRACT: The physical nature of the limitations imposed on the solutions of the Klein equations by the Kemmer equations is established. It is shown that generalization of the concept of four-dimensional transversality and longitudinality to products of Dirac bispinors and undors of the second rank permits a new physical interpretation of boson wave equations. The generalization of the Kemmer algebra to include the field of matrices possessing inverses is investigated, and equations are written down for particles having different masses in the longitudinal and transverse states of the field, without introducing directly any higher derivatives into the wave equations. The transition to equations with more than two mass states calls for the introduction of a suitable number of commuting Dirac

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ACCESSION NR: AP3005256

algebras and entails a transition to representations of higher rank, but in this case the representations become incompatible with the Hermitian representation. Orig. art. has 38 formulas.

ASSOCIATION: Dnepropetrovskiy gosudarstvenny*y universitet (Dnepropetrovsk State University)

SUBMITTED: 16Aug63 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: PH NO REF SOV: 005 OTHER: 000

Card 2/2

L 33289-66 EWT(1) GG

ACC NR: AP6014057 SOURCE CODE: UR/0056/66/050/004/1167/1170

AUTHORS: Borgardt, A. A.; Karpenko, D. Ya. 43 44 B

ORG: Dnepropetrovsk State University (Dnepropetrovskiy gosudarstvennyy universitet)

TITLE: Bosons in the field of a plane electromagnetic wave 27

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 50, no. 4, 1966, 1167-1170

TOPIC TAGS: boson, electromagnetic wave, relativistic electron, algebra

ABSTRACT: The authors obtain a solution of the Kemmer equation for a boson in the field of a plane wave in terms of reducible representations. These representations satisfy, besides the well known rules of the Kemmer algebra, also relations that were obtained in an earlier paper by one of the authors (Borgardt, Dissertation, Dnepropetrovsk State University, 1964). The solution obtained applied to all types of Kemmer bosons (vector, pseudoscalar, axial vector, and scalar). The irreducible parts of the representations are separated by means of the projection operators presented earlier in a paper by the other author

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ACC NR: AP6014057

(Karpenko, with Ya. P. Yaroshenko, ZhETF v. 49, 1463, 1965). The authors are grateful to Ya. P. Yaroshenko for checking the calculations and for a number of important corrections and remarks. Orig. art. has: 27 formulas.

SUB CODE: 20/ SUBM DATE: 26Nov65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

BORGARENKO, L.F.

Discovery of a rare nematode from the green bee eater in southern Tajikistan. Dokl. AN Tadzh. SSR 3 no.1:51-54 '60. (MIRA 13:12)

1. Institut zoologii i parazitologii AN Tadzhikskoy SSR. Predstavleno chlenom-korrespondentom AN Tadzhikskoy SSR M.N. Narzikulovym.
(Parasites--Bee eaters) (Tajikistan--Nematoda)

BORGARENKO, L.F.

The nematode Gongylohema caucasica Kuraschvili 1941 in chickens in Tajikistan. Dokl.AN Tadzh.SSR 3 no.4:39-41 '60. (MIRA 14:4)

1. Institut zoologii i parazitologii im. akad. Ye.N.Pavlovskogo AN Tadzhikskoy SSR. Predstavleno chlenom-korrespondentom AN Tadzhikskoy SSR M.N.Narzikulovym.
(Parasites--Poultry) (Tajikistan--Nematoda)

BORGARENKO, L. F., Cand Bio Sci -- "Helminth fauna of domestic and hunting ~~birds~~ fowl of Tadzhikistan." Stalinabad, 1961. (Acad Sci Tadzhik SSR. Dept of Agr and Bio Sci)
(KL, 8-61, 236)

BORGARENKO, L.F.

A new species Diplotriaena timuri from wild birds of Tajikistan. Trudy Inst. zool. i paraz. AN Tadzh. SSR 24:178-180 '63.

Stellobronema ryjikovi, a new nematode from a green bee eater (Nematoda:Spirurata). Ibid.:181-183

(MIRA 17:11)

1. Institut zoologii i parazitologii imeni akademika Pavlovskogo AN Tadzhikskoy SSR.

BOREYSHO, Yu.S.

Independent work of students during the study of seeds.
Biol. v shkole no.5:16-21 S-O '62. (MIRA 16:2)

1. Vitebskiy pedagogicheskiy institut.
(Botany—Study and teaching)
(Seeds)

BONICI, A.

The International Scientific and Technical Film Festival of the Machinery Industry is ended. p. 351.

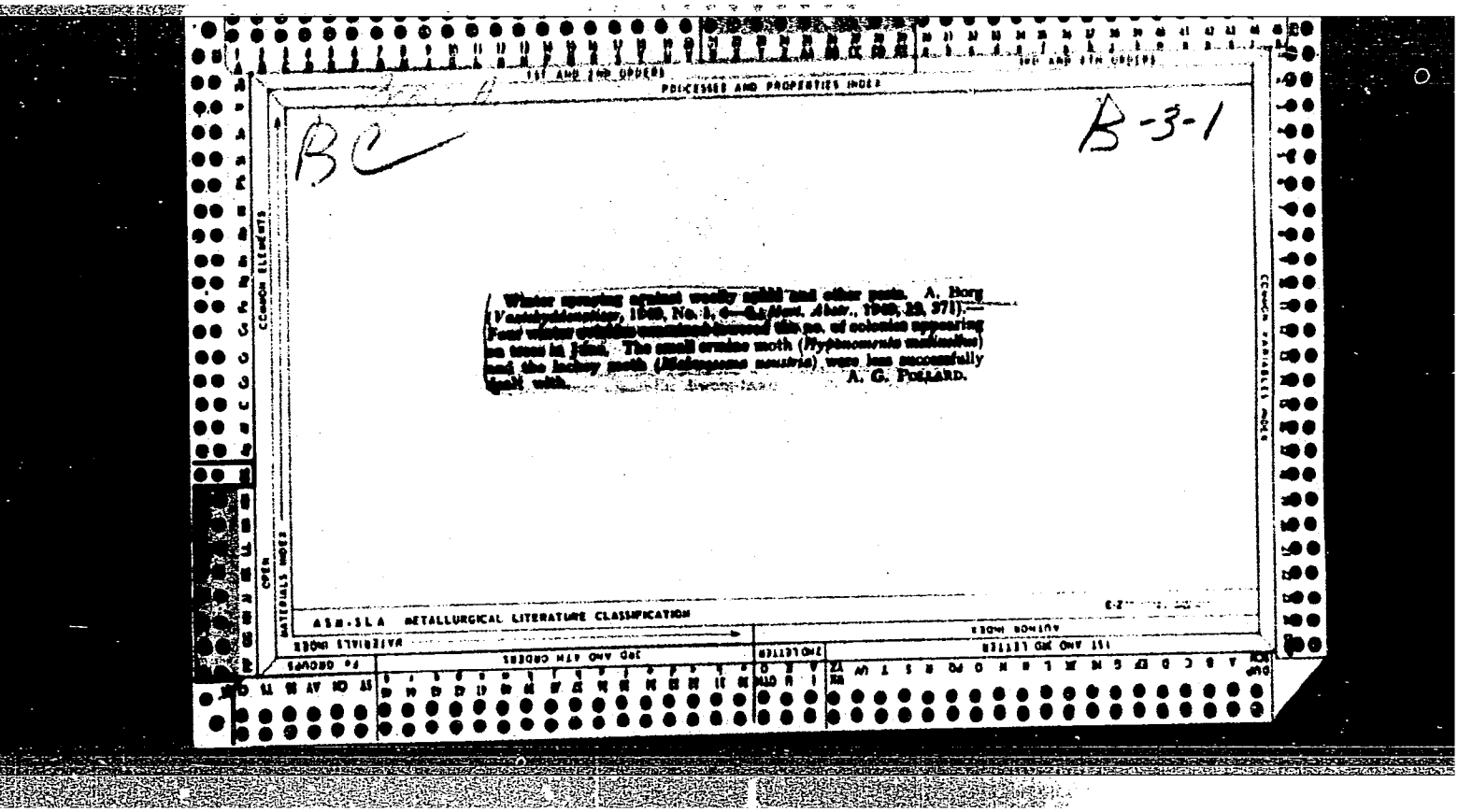
JARMUVEK MEGGAZDASAGI GEPEK. (Gepipari Tudomanyos Egyesulet) Budapest, Hungary. Vol. 6, no. 11, 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 1, Jan. 1960

Uncl.

BORFOI, Miklos

International Scientific and Technical Film Festival arranged by the Scientific Association of the Machine Industry. Jarmu mezo gep 6 no. 11:351-3 of cover '59.



BORGARDI, M.

Investigation of some problems related to the caustification of red mud in alumina factories. p. 194.
(KOHASZATI LAPOK. Vol. 12, no. 4/5, Apr/May 1957. Budapest, Hungary)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, no. 12, Dec. 1957. Uncl.

BOGARDI, J.

Geography & Geology

Some new contributions to the theory of sediment transportation. p. 241

Vol. 38, No. 4, Aug. 1958

"HIDROLOGIAI KOZLONY. HYDROLOGICAL JOURNAL"
Monthly List of East European Accession (EEAI), LC, Vol. 8, No. 4, April 1959

UNCLASSIFIED

BORGARDI, J.

Hidrologiai Kozlony. Hydrological Journal. (Magyar Hidrologiai Tarsasag) Budapest. Vol. 69, no. 2, 1958.

Some new contributions to the theory of sediment transportation. p. 241.

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 8, No. 4, April 1959. Uncl.

BORGARDT, A. A.

PA 1/50T86

USSR/Physics - Polarization Aug 49
Dielectrics

"The Theory of Orientational Polarization," A. A. Borgardt, B. N. Finkel'shteyn, Dnepropetrovsk State U, Moscow Inst of Steel imeni I. V. Stalin, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 6

The theory of orientational polarization of dipole liquids in constant electric fields leads to negative values of dielectric permeability for sufficiently low temperatures, and predicts the existence of spontaneous

1/50T86

USSR/Physics - Polarization (Contd) Aug 49

electric polarization which is not discovered in experiments. Discusses the distribution function for chance values of the internal field F, which represents the geometric sum of the electric fields created at a given point by all dipoles. Submitted by Acad M. A. Leontovich 28 Jun 49.

1/50T86

BORGARDT, A. A. PA 16919L

USSR/Physics - Polarization, Dipole Oct 50

"Theory of Polarization of Dipole Liquids and Gases in a Constant Electrical Field, I," A. A. Borgardt, B. N. Finkel'shteyn, Dnepropeterovsk State U; Moscow Inst of Steel

"Zhur Eksper i Teoret Fiz" Vol XX, No 10, pp 887-892

In calculations of oriented polarization of dipole gases and liquids in constant electrical field, one introduces statistical distribution for internal field intensity. Averaging with respect to direction is carried out taking into account deviation of spatial distribution from isotropic distribution.

16919L

USSR/Physics - Polarization, Dipole Oct 50 (Contd)

Also taken into consideration is elastic polarization of molecules in internal field. Formula for dielectric susceptibility of dipole liquids does not contain other constants than molecular constants. Submitted 15 Mar 50.

16919L

USSR/Physics - Polarization, Liquids Mar 51

"Polarization Theory of Dipole Liquids and Gases in a Constant Electric Field. II. Orientative Polarization of Compressed Dipole Gases and Solutions of Dipole Substances in Nonpolar Solutions," A. A. Borgardt, Dnepropetrovsk State U

"Zhur Eksper i Teoret Fiz" Vol XXI, No 3, pp 436-442

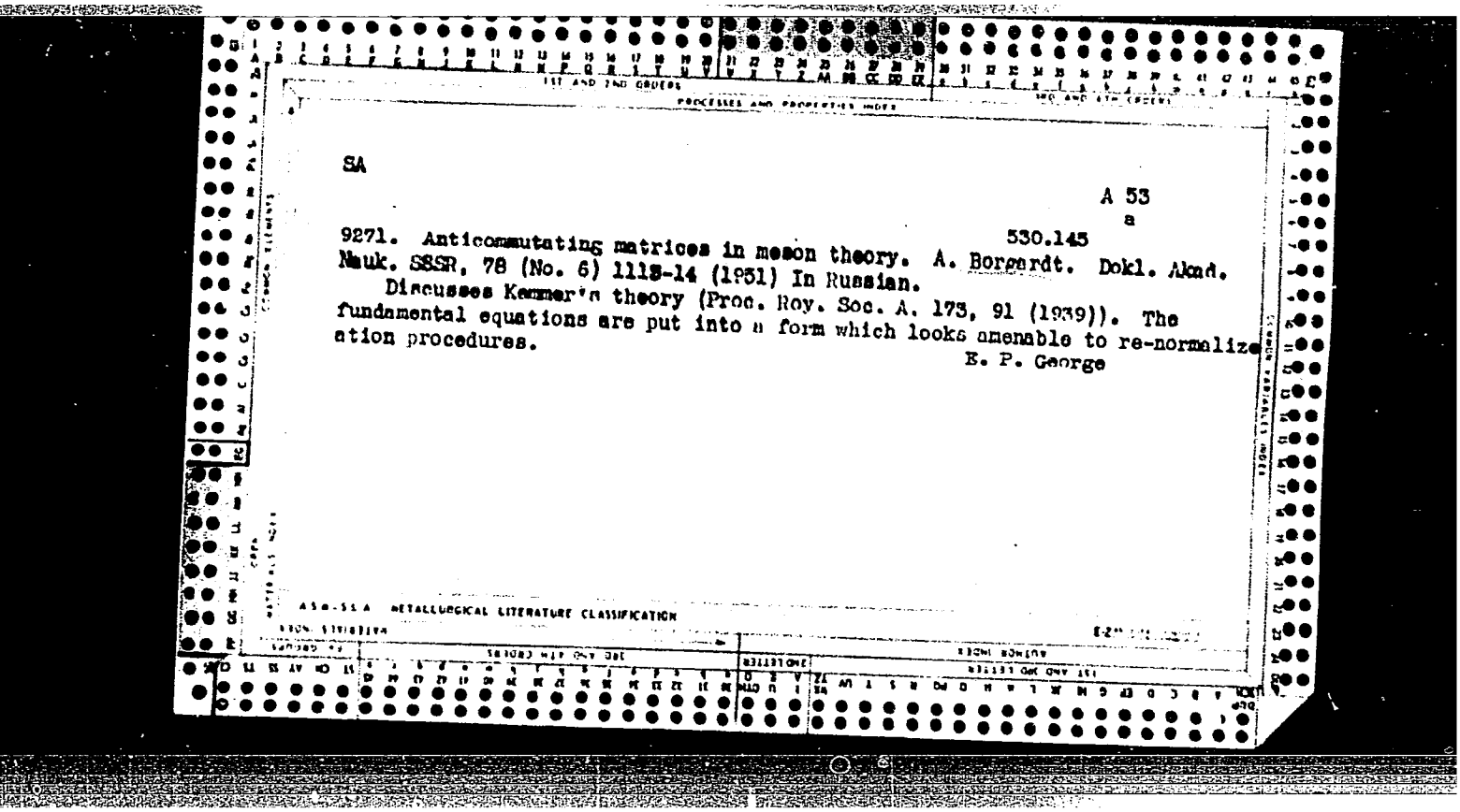
Discusses generalization of orientative polarization theory taking into account int fld, as developed by Borgardt and B. Finkelshteyn (cf. "Dok Ak Nauk SSSR" 67, 981, 1949 and "Zhur Eksper i Teoret Fiz" 20,

[redacted] 18OT106

USSR/Physics - Polarization, Liquids (Contd) Mar 51

887, 1950.) Application of this theory to dipole gases permits finding relation of molar orientative polarization of gases to temp and pressure.

[redacted] 18OT106



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9271. Anticommutating matrices in meson theory. A. Borgardt. Dokl. Akad. Nauk. SSSR, 78 (No. 6) 1113-14 (1951) In Russian. 530.145

Discusses Kemmer's theory (Proc. Roy. Soc. A. 173, 91 (1939)). The fundamental equations are put into a form which looks amenable to re-normalization procedures.

E. P. George

CHEMIS, A. A.

33374. Mysh'yakovistyy Angidrid Pri Askaridoze I Strongilidoze Loshadey. Veterinariya, 1949, No. 11, c.30.

SO. Letopis' Zhurnal'nykh Statey, Vol. 45, Moskva, 1949

BORGEST, A.N.

Physiology of conditioned reflex connections in children. Trudy Inst. fiziol. 6:162-171 '57. (MIRA 11:4)

1. Laboratoriya vysshey nervnoy deyatel'nosti rebenka (zaveduyushchiy N.I. Krasnogorskiy).

(CONDITIONED RESPONSE)

BORGEST, A.N., Cand Med Sci--(diss) "Data for the study of ~~of~~ conditioned reflex associations in children." Len, 1958. 16 pp (Acad Sci USSR. Inst of Physiology im Acad I.P. Pavlov), 100 copies (KL,26-58,115)

-130-

BORGEST, A.N.

Afferent impulse in the nerves of the gastrointestinal tract of an animal during prolonged starvation. Nauch. soob. Inst. fiziol. AN SSSR no.1:150-152 '59. (MIRA 14:10)

1. Laboratoriya electrofiziologii (zav. - V.Ye. Delov) Instituta fiziologii imeni Pavlova AN SSSR.
(CONDITIONED RESPONSE) (ALIMENTARY CANAL)

GOLIKOV, N.V., otv.red.; KRATIN, Yu.G., otv.red.; ADAMOVICH, N.A., red.; BORGEST, A.N., red.; DANILOV, I.V., red.; VASIL'YEVA, Z.A., red. izd-va; SMIRNOVA, A.V., tekhn.red.

[Problems in electrophysiology and encephalography; transactions of the first all-Union conference, Leningrad, May 8-11, 1957] Voprosy elektrofiziologii i entsefalografii; trudy 1-i Vsesoiuznoi konferentsii, Leningrad 8-11 maia 1957 g. Moskva, Izd-vo Akad. nauk SSSR, 1960. 399 p. (MIRA 13:2)

1. Vsesoyuznoye fiziologicheskoye obshchestvo. 2. Fiziologicheskiy institut im. akadm.A.A.Ukhtomskogo Leningradskogo gosudarstvennogo universiteta im. A.A.Zhdanova (for Golikov). 3. Institut fiziologii im. I.P.Pavlova AN SSSR, Leningrad (for Kratin). 4. Institut eksperimental'noy meditsiny AMN SSSR, Leningrad (for Danilov).
(ELECTROPHYSIOLOGY)

BORGEST, A.N.

Afferent pulsation in the nerves of the small intestine during prolonged hunger in an animal. Trudy Inst. fiziol. 9:35-41 '60. (MIRA 14:3)

1. Laboratoriya elektrofiziologii (zaveduyushchiy - V.Ye.Delov) Instituta fiziologii im.I.P.Pavlova.

(INTESTINES—INNERVATION) (ELECTROPHYSIOLOGY)
(STARVATION)

ADAMOVICH, N.A.; BORGEST, A.N.

Afferent effects from the urinary bladder on the hypothalamus. Biul. eksp. biol. i med. 60 no.9:15-19 S '65. (MIRA 18:10)

1. Laboratoriya elektrofiziologii (zav. V.Ya. Delov [deceased]) Instituta fiziologii imeni Pavlova (dir. - akademik V.N. Chernigovskiy) AN SSSR, Leningrad.

BORGEST, V.A.; VEYNBERG, G.V.; ZAYDEL', A.N.; PETROV, A.A.

Spectrum analysis of isotopes of a hydrogen-deuterium mixture. Fiz.sbor. no.4:207-209 '58. (MIRA 12:5)

1. Fizicheskiy institut Leningradskogo ordena Lenina gosudarstvennogo universiteta imeni A.A.Zhdanova.
(Hydrogen--Spectra)

SOV/51-5-6-8/19

AUTHORS: Borgest, V.A. and Zaydel' A.N.

TITLE: Application of an Interference-Polarization Filter in the Analysis of the Isotopic Composition of Hydrogen-Deuterium Mixtures (Primeneniye interferentsionno-polyarizatsionnogo fil'tra dlya analiza izotopnogo sostava vodorodno-deyteriyevykh smesey)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 6, pp 686-691 (USSR)

ABSTRACT: The authors describe two variants of Wood's interference-polarization filter and their use in the isotopic analysis of hydrogen with less than 0.1% or more than 10% (10-90%) of deuterium. The filter is used to separate out α-lines of H and D. It consists of an Iceland spar plate of 7.5 mm thickness, cut parallel to its optical axis and placed between two crossed (or parallel) polarizers in such a way that the optical axis of the crystal makes 45° with the plane of polarization. If a parallel beam of monochromatic light is passed through the filter then the emergent beam will be elliptically polarized due to double refraction and interference between the ordinary and extraordinary rays. If the plate thickness d satisfies the following equality $2\mu d = 2k\lambda_1 = (2k + 1)\lambda_2$

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Application of an Interference-Polarization Filter in the Analysis of the Isotopic Composition of Hydrogen-Deuterium Mixtures

where λ_1 and λ_2 are the wavelengths of H_α and D_α lines, μ is the difference between the refractive indices of the ordinary and extraordinary rays and k is an integer, then the rays of wavelengths of λ_1 and λ_2 will be polarized at right-angles to each other. The second polarizer may then be used to extinguish one of the lines. In practice extinction is not complete because the beam is not ideally monochromatic, the angular width of the beam is finite and the Icelend spar plate is not perfect because scattered light is present. It is possible to reduce the intensity of one ray with respect to the other ray by a factor of 40. The intensities of the two lines (one considerably weaker) may be compared either (1) after spectral separation of the beam using a TS-1 spectrograph with a diffraction grating, or (2) using a visual photometer consisting of a Wollaston prism and an analyser (the analyser is rotated to make the intensities of both lines the same). In the latter case rough monochromatization of light was necessary which was produced by means of an interference or an absorption filter. Method (1) was used for deuterium concentrations of less than 0.1%; method (2) was used for deuterium concentrations of 10-90%. The

Application of an Interference-Polarization Filter in the Analysis of the Isotopic Composition of Hydrogen-Deuterium Mixtures

optical system for deuterium of small concentrations of deuterium is shown in Fig 1. Polaroids N_1 and N_2 are placed in a parallel beam between lenses L_1 and L_2; the polaroids are crossed and rotated to positions in which the optical axis of the crystal P bisects the angle between their planes of polarization. In order to make sure that the intensity ratio J_D/J_H of the two lines did not change by more than 5% during an experiment, it was necessary to control the temperature of the crystal plate P to within 0.005°C. The isotopic analysis of hydrogen with small concentrations of deuterium was carried out using a calibration curve constructed from measured ratios of the intensity of the weakened line of hydrogen to the intensity of the non-weakened line of deuterium in mixtures of known composition. When the interference polarization filter is used in visual analysis a Wollaston prism is necessary which separates spatially the deuterium and hydrogen lines. The optical system for visual observation, used for the analysis of H-D mixtures with 10-90% of D, is shown in Fig 3. In this figure F denotes a filter used for rough monochromatization, S is the entrance slit, L_1 is a collimating lens, N is a polarizer, P is the crystal, W is a Wollaston prism, A is an analyser and G represents the eye of

Application of an Interference-Polarization Filter in the Analysis of the Isotopic Composition of Hydrogen-Deuterium Mixtures

the observer. Since the deuterium and hydrogen lines are polarized in mutually perpendicular planes, their ratio of intensities can be measured by making the fields of view equal using the analyser A. In the visual method careful control of the temperature of the crystal P is not necessary. Fig 5 shows a discharge tube which was used as a standard when filled with a known H-D mixture. Such tubes were found to work satisfactorily for 20-30 hours without a break (one reading in determination of D concentration takes 30-40 sec). There are 5 figures and 5 references, 2 of which are American, 1 Soviet, 1 international and 1 translation.

SUBMITTED: January 21, 1958

KUCHINA, F.M.; MATROSOVA, T.V.; BORGEST, V.A.; ZAYDEL', A.N.; PEGROV, A.A.; STRELYAYEV, M.I.; GEMINOV, V.N.

Brief reports. Zav. lab. 24 no.8:958, 1034-1035 '58. (MIRA 11:8)

1.Kuznetskiy metallurgicheskiy kombinat (for Kuchina). 2. Leningradskiy gosudarstvennyy universitet (for Borgest, Zaydel', Pegrov). 3.Kuybyshevskiy inzhenerno-stroitel'nyy institut (for Strelyayev).
(Chemistry, Analytical) (Metals--Testing)
(Reinforced concrete--Testing)

Akademiya nauk SSSR. Komissiya po analiticheskoy khimii

Analiz gazov v metallakh (Analysis of Gases in Metals) Moscow, 1960. 304 p. (Series: Its: Trudy, tom 10) Errata slip inserted. 4,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo. Komissiya po analiticheskoy khimii.

Resp. Ed.: A.P. Vinogradov, Academician; Ed. of Publishing House: A.A. Bankvitser; Tech. Ed.: V.V. Brusgul'.

PURPOSE: This book is intended for laboratory personnel concerned with gas analysis in metals.

COVERAGE: This collection of articles is based on materials of the Commission on Analytical Chemistry AS USSR on problems dealing with gas analysis in metals. The articles present data on: 1) The vacuum-fusion method, developed by European scientists and the Soviet scientists N.P. Chizhikov, and Yu.A. Klyachko, for the analysis of gases in steel and aluminum, and new applicable to analysis of gases in other metals. 2) The research of Z.M. Nuretdinova and co-workers at the Institute of Geochemistry and Analytical Chemistry imeni V.I. Vernadskiy AS USSR, Moscow, making it possible to evaluate the practicability and fields of application of the different analytical methods. 3) The contributions of Yu.A. Klyachko and coworkers in their study of thermodynamic methods for the evaluation of suitable conditions for carrying out analysis. 4) The determination of gases in metals by the fulfurous method as developed by A.K. Babko. 5) The spectral isotope method for the determination of hydrogen as developed by A.M. Zaydel' and coworkers. The authors of these articles systematize and review critically the various analytical methods, describe the apparatus used in analysis, and indicate the basic trends of research. References accompany most of the articles.

III. APPARATUS FOR GAS ANALYSIS IN METALS

AVAILABLE: Library of Congress

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JA/dwm/mh
2/6/61

BORGES", V.A.; ZAYDEL', A.N.; PETROV, A.A.

Unit for the spectral-isotopic determination of hydrogen in metals.
Trudy kom.anal.khim. 10:270-277 '60. (MIRA 13:8)

1. Leningradskiy gosudarstvennyy universitet.
(Hydrogen--Analysis)
(Chemical apparatus)
(Metals--Hydrogen content)
(Deuterium)

BORGEST, V.A.

Determination of deuterium in water in concentrations near the natural proportion, using infrared absorption spectra. Opt.i spektr. 11 no.4:558-559 O '61. (MIRA 14:10)
(Deuterium--Spectra)

BORGEST, V.A.; SHCHEPKIN, D.N.

Simple infrared spectrometer having a diffraction grating based on an IKS-6 instrument. Prib. i tekh. eksp. 7 no.2:173-174 Mr-Ap '62. (MIRA 15:5)

1. Leningradskiy gosudarstvennyy universitet.
(Spectrometer) (Diffraction gratings)

BORGEST, V.A.; BULANIN, M.O.; ORLOVA, N.D.

Shape of the infrared ν_3 band of methane dissolved in liquid oxygen and liquid nitrogen. Opt. i spektr. 18 no.6:1073-1074 Je '65. (MIRA 18:12)

BORGGARDT, Aleksandr Ivanovich, prof.; DUNIN, M.S., prof., doktor sel'-khoz. nauk, red.; NEMLIYENKO, F.Ye., doktor sel'khoz. nauk, red.; ZHUK, K.A., kand. sel'khoz. nauk, red.; SAVZDARG, V.E., red.; GOR'KOVA, Z.D., tekhn. red.

[Selected works on phytopathology] Izbrannye trudy po fitopatologii. Moskva, Gos. izd-vo sel'khoz.lit-ry, 1961. 214 p. (MIRA 15:1)
(Plant diseases)

NEGREANU, M.; BORGHIDA, Gheorghe, tehnician

Comfort, a combination of the useful with beauty. Constr Buc 17 no.797:2 17 Ap '65.

BORGI, S.M., kand.med.nauk

On the innervation of leg bones from the viewpoint of age. Ortop. travm. i protez. 20 no.8:37-41 Ag '59. (MIRA 12:11)

1. Iz kafedr normal'noy anatomii (zav. - prof. R.D. Sinel'nikov) i topograficheskoy anatomii (zav. - prof. I.M. Fayerman) Khar'kovskogo meditsinskogo instituta (dir. - dotsent I.F. Kononenko) i Ukrainskogo instituta ortopedii i travmatologii (dir. - chlen-korrespondent AMN SSSR prof. N.P. Novachenko).
(TIBIA, innervation)
(AGING, physiology)

BORGMAN, V.A.; CHISTOSERDOV, V.G.

Certain properties of a latent image in photosensitive glasses.
Stekloobr. sost. no.1:150-151 '63. (MIRA 17:10)

BORGMAN, V.A.; ZHMYREVA, I.A.; ZELINSKIY, V.V.; KOLOBKOV, V.P.

Basic processes in the deactivation of excited states of complex organic molecules. Izv.AN SSSR.Ser.fiz. 24 no.5: 601-606 My '60. (MIRA 13:5)
(Molecules)

AUTHORS: Borgman, V. A., Zhmyreva, I. A., Zelinskiy, V. V., Kolobkov, V. P.

S/020/60/131/04/018/073
B013/B007

TITLE: The Influence Exerted by Heavy Halogens on the Probability of Transition to the Metastable State and the Probability of Deactivation of This State

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 4, pp 781-784 (USSR)

TEXT: The present paper is intended to show more clearly than was hitherto done that the action of extinguishers of the halide type on the fluorescence of organic compounds results in a higher probability (r) of transition of the excited molecule to the metastable state and to show the influence exerted by these extinguishers on the probabilities q_2 and $\varkappa$ respectively of transitions from the metastable state to the ground state with and without emission. Besides the salts of hydriodic acid, the authors used bromides as extinguishers. q_2 is less increased by weak bromide extinguishers. In order to obtain a higher q_{phosph} in some cases and clearer extinction in others, higher concentrations of iodides were used. Table 1 contains the absolute yields q_{fluor} and q_{phosph} of fluorescence and phosphorescence, as well as the rates of damping ν^* of fluorescence at certain concentrations of the salts of bromides and iodides in

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The Influence Exerted by Heavy Halogens on the Probability of Transition to the Metastable State and the Probability of Deactivation of This State

S/020/60/131/04/018/073
B013/B007

solutions of organic substances in methyl alcohol. The damping of phosphorescence was carried out by means of a device developed by B. Ya. Sveshnikov and P. I. Kudryashov, and short-time recordings were carried out by means of the τ-meter designed by N. A. Tolstoy and P. P. Feofilov. Different salts of one and the same halogen hydracid have the same effect: At the same molar concentration they have the same effect on the yield of fluorescence and the duration of phosphorescence. Next, the authors describe an attempt made to prove that there are no further complicating circumstances and errors in measurement. The use of bromides and higher concentrations of iodides made it possible to illustrate clearer cases of increase in q_{phosph} under the action of extinguishers. Details are described. In all cases the duration of phosphorescence decreases considerably with increasing q_{phosph}. A qualitative comparison of the yield of luminescence and the duration of phosphorescence shows in some cases that also the presence of iodine in the solution increases π considerably. Halogens have a particularly strong effect on π if bromine and iodine are contained in the phosphorescent molecule. The deactivation of only 30 per cent of all adsorbing molecules falls to the portion of radiationless processes. Introduction of

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The Influence Exerted by Heavy Halogens on the Probability of Transition to the Metastable State and the Probability of Deactivation of This State

S/020/60/131/04/018/073
B013/B007

iodine into the molecule of the luminescent substance increases π considerably. This holds also for 3-acetyl-N-methyl phthalimide. q_2 is usually smaller than π. Introduction of iodine into the solution increases q_2 in most cases to such an extent that the extinction on the metastable level reduces not only $q_{rad.sum}$ but also q_{phosph}. When using a less active extinguisher - bromine and high concentrations of iodine - one obtains good examples for the increase of q_{phosph} and, consequently, of $q_{rad.sum}$ under the action of the extinguisher. The authors thank B. Ya. Sveshnikov, P. I. Kudryashov, V. A. Arkhangel'skaya, and T. K. Razumova for having put the necessary instruments at their disposal and for their valuable help. There are 1 table and 8 references, 2 of which are Soviet.

PRESENTED: October 26, 1959, by A. A. Lebedev, Academician

SUBMITTED: October 7, 1959

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24660

S/076/61/035/006/013/013
B127/B203

15.2120

AUTHORS: Borgman, V. A., Petrov, V. M., and Chistoserdov, V. G.

TITLE: Temperature dependence of the photochemical process in light-sensitive glass

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 6, 1961, 1383-1385

TEXT: The authors studied the properties of light-sensitive glass during irradiation with ultraviolet light from a ПРК-7 (PRK-7) irradiation lamp at temperatures of -180°C to 550°C. The composition of the glass in % was as follows: 76 SiO_2; $8Al_2O_3$; $12Li_2O$, $4K_2O$; 0.03 CeO_2; 0.02 Ag. The Ce^{+++} ion served as photoelectron emitter excited by light of the wavelength 300-350 mμ. When working in the heat, the Ag^+ was reduced by the photoelectrons, and was present as colloidal Ag. Glass irradiated at 20°C changed color when heated to 450°C. At 530-550°C, the color intensified. Glass irradiated at temperatures above 220°C started changing its color during irradiation, the color intensification showed the increasing concentration of colloidal silver. Slightly above the deformation point (550°C), the sensitiveness to light stopped. The necessity of "developing"

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S/076/61/035/006/013/013
B127/B203

Temperature dependence of the...

glass irradiated below 220°C by heating indicates that below 220°C there are capture centers catching the photoelectrons and permitting a reduction of the metal only by the release of electrons on heating. If the glass is exposed to ultraviolet light at less than 500°C, it becomes yellow due to the silver content. At 500-515°C, it was orange, at 515-530°C, mahogany, at 530-540°C, green, and at 540-550°C, brown. The specimen was placed at 17.5 cm before the lamp, and heated to 535°C: 5 min irradiation, yellow, 10 min, dark yellow, 13 min, orange, 17 min, mahogany, 25 min, green. At a temperature below 530°C, the colloidal Ag particles started growing at different rates. The thickness of the colored layer was varied at varying temperatures: at 20°C, it was 7 mm, at 510-535°C, 1 mm, and at 540°C, 0.1 mm. If the 0.02 % Ag content was substituted by a 0.01 % Au content, other rules were governing. The reason is that Au atoms are less mobile than Ag atoms, and therefore the colloidal particles are formed more slowly. The temperature range of the photosensitivity changes intensively with a change in the glass composition. There are 2 figures and 3 references: 2 Soviet-bloc.

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24660

Temperature dependence of the... S/076/61/035/006/013/013
B127/B203

ASSOCIATION: Nauchno-issledovatel'skaya laboratoriya Leningradskogo zavoda khudozhestvennogo stekla (Scientific Research Laboratory of the Leningrad Plant for Artistic Glass)

SUBMITTED: November 18, 1960

X

Card 3/3

BORGMAN, V.A.; CHISTOSERDOV, V.G.

Coloring of light-sensitive glass by X radiation.
Opt. i spektr. 13 no.3:421-424 S '62. (MIRA 15:9)
(Spectrophotometry)
(X rays) (Color centers)

BORGMAN, V.A.; CHISTOSERDOV, V.G.

Absorption bands of latent image centers in photosensitive glass. Opt. i spektr. 12 no.1:140-141 Ja '62. (MIRA 15:2)
(Glass--Spectra)
(Color centers)

41536

S/051/62/013/003/008/012
E202/E435

AUTHORS: Borgman, V.A., Chistoserdov, V.G.

TITLE: Colouring of photosensitive glasses by X-rays

PERIODICAL: Optika i spektroskopiya, v.13, no.3, 1962, 421-424

TEXT: The authors studied absorption bands formed as a result of X-ray irradiation of photosensitive glasses and the subsequent changes in these bands caused by heat treatment. Glass no.1 contained SiO_2 - 76, Al_2O_3 - 8, Li_2O - 12, K_2O - 4 wt.%. Glass no.2 had in addition 0.03% CeO_2 and 0.01% Ag. Glass no.3 - 0.02% Ag, Glass no.4 - 0.03% CeO_2 and 0.01% Au. Glass no.5 - 0.01% Au. A tungsten target and a 185 kV РУМ-3 (RUM-3) X-ray unit was used for irradiation. High temperature treatment was carried out in a special oven provided for irradiation with an aluminium foil window. Optical density curves with respect to wavelength were plotted using the СФ-4 (SF-4) spectrometer followed by plotting the differential curves for each sample before and after treatment. After irradiation, glass no.1 gave an absorption band with a maximum at 600 to 620 mμ and a group of strongly overlapping bands with a maximum at 300 mμ. All the remaining glasses with the photosensitive additives showed quite

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different spectra. Glasses no.3 and 5 had only one band I, whilse no.2 and 4 had also band II overlapping band I. Heating up to 170°C rendered band I colourless and introduced band II into no.3 and 5. These and other results of earlier work employing ultraviolet irradiation showed that the effect of X-rays on the photosensitive glasses gives rise to entirely different processes from those due to ultraviolet irradiation. It was also found that cerium additives have substantially no effect on the photosensitivity to X-rays. Properties of the latent image formation depended on the metal of the photoactive additive, i.e. Ag or Au, the latter ions taking part in the formation of latent image centres. There are 3 figures.

SUBMITTED: July 20, 1961

[redacted]

"The effect of glass structure variations on photosensitivity."

report submitted for 4th All-Union Conf on Structure of Glass, Leningrad, 16-21 Mar 64.

ACCESSION NR: AT4019306 S/0000/63/003/001/0150/0151

AUTHOR: Borgman, V. A.; Chistoserdov, G.

TITLE: Some properties of the latent image in photosensitive glasses

SOURCE: Simpozium po stekloobraznomu sostoyaniyu. Leningrad, 1962. Stekloobraznoye sostoyaniye, vy*p 1: Katalizirovannaya kristallizatsiya stekla (Vitreous state, no. 1: Catalyzing crystallization of glass). Trudy* simpoziuma, v. 3, no. 1. Moscow, Izd-vo AN SSSR, 1963, 150-151

TOPIC TAGS: glass, photosensitive glass, latent image, irradiation, ultraviolet light, photosensitivity, ultraviolet irradiation, optical density

ABSTRACT: The effect of ultraviolet light on photosensitive glass (0.4 mm thick sample) was investigated to determine the dependence on temperature and time of irradiation. The relationship between the optical density inthe maximum region of absorption of the latent image centers and the irradiation time at 20 and 180C is shown in Fig. 1 of the Enclosure. The relationship between the value $\ln \frac{\Delta Dm}{\Delta t}$ and irradiation time was investigated at 20 and 180C. The experimental curves showed that at 20C $\alpha N=0.1$ and an $\sigma_0=1.17 \times 10^{-16}$, at

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ACCESSION NR: AT4019306

180C, α N=0.17 and an $_{o}$=2.6 x 10^{-6} for the given thickness of the sample and under the given irradiation conditions, inasmuch as N (the concentration of free electrons) depends on the intensity of radiation (n_0 = free traps). The investigations with other samples give a scattering of the an$_{o}$ value within two orders, because the properties of glass samples differ somewhat in homogeneity. Undoubtedly the N value varies little over the temperature range investigated at the same intensity of radiation, while the concentration of trap no increases with temperature 9 to 10 times as much. This explains the increase in photosensitivity during heating over temperature ranges at which a latent image is formed. After heating and cooling of the glass n_0 and the sensitivity increase with respect to the initial value. Hence the growth of n_0 must be attributed to the reversible changes in the glass structure. Orig. art. has: 4 formulas and 2 figures.

ASSOCIATION: None

SUBMITTED: 17May63 DATE ACQ: 21Nov63 ENCL: 01

SUB CODE: MT, OP NO REF SOV: 002 OTHER: 000

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ACCESSION NR: AT4019306

ENCLOSURE: 01

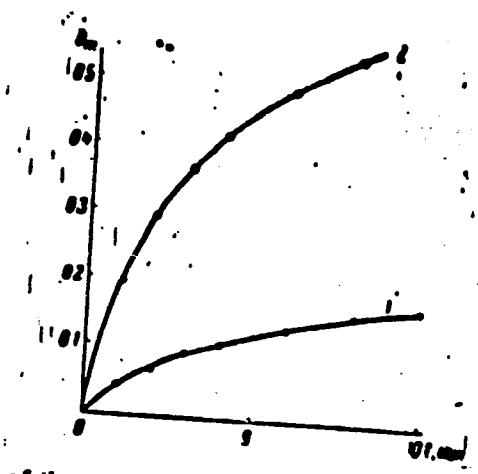

Fig. 1 - Dependence of the optical density in the maximum absorption band of latent image centers on the irradiation time.
1 - irradiation at 20C 2 - at 180C

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L 11848-66 EWT(m)/EWP(e)/EWP(b) WH/GS
ACC NR: AT6000508 SOURCE CODE: UR/0000/65/000/000/0377/0380

AUTHOR: Borgman, V. A.; Gurkovskiy, Ye. V.; Chistoserdov, V. G.

ORG: None

TITLE: The effect of changes in glass structure on light sensitivity

SOURCE: Vsesoyuznoye soveshchaniye po stekloobraznomu sostoyaniyu. 4th, Leningrad, 1964. Stekloobraznoye sostoyaniye (Vitreous state); trudy soveshchaniya, Leningrad, Izd-vo Nauka, 1965, 377-380

TOPIC TAGS: photosensitivity, glass property, optic property, glass

ABSTRACT: The development temperature t_d of light sensitive glasses decreases with an increase in irradiation temperature t_{irr} (V. A. Borgman, V. M. Petrov, V. G. Chistoserdov, ZhFKh, 35, No. 6, 1383, 1961) and seems to depend on the concentration of centers of the latent image. The present investigation studied these relationships on the glass types shown in Table 1. The results are summarized in Figures 1 and 2. The authors provide a theoretical explanation of the results by assuming that the neutral silver atoms have a large mobility similar to the vapor phase which at appropriate concentration and temperature

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L 11848-66

ACC NR: AT6000508

Table 1. Glass Composition in mol %

Oxide	Glass No									
	1	2	3	4	5	6	7	8	9	10
SiO_2	71	71	71	70	70	70.5	70.85	70.85	70.5	69.1
Al_2O_3	1.45	1.45	1.45	1.2	1.2	1.2	4.4	4.4	—	—
Li_2O	—	—	—	—	—	—	—	22.5	—	—
Na_2O	8.4	8.4	8.4	13.9	13.9	11.5	22.5	—	11.3	21.7
K_2O	4.6	4.6	4.6	3.9	3.9	4.8	2.25	2.25	—	—
MgO	—	—	—	—	—	12	—	—	—	—
CaO	2.6	2.6	2.6	11	11	—	—	—	9.2	9.2
BaO	12	12	12	—	—	—	—	—	—	—
CeO_2	0.011	0.011	—	0.011	0.011	0.011	0.011	0.011	0.02	0.02
Ag	0.027	—	—	—	0.027	—	0.015	0.015	—	—
An	—	0.0025	0.0025	0.0025	—	0.0025	—	—	0.006	0.006

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L 11848-66
ACC NR: AT6000508

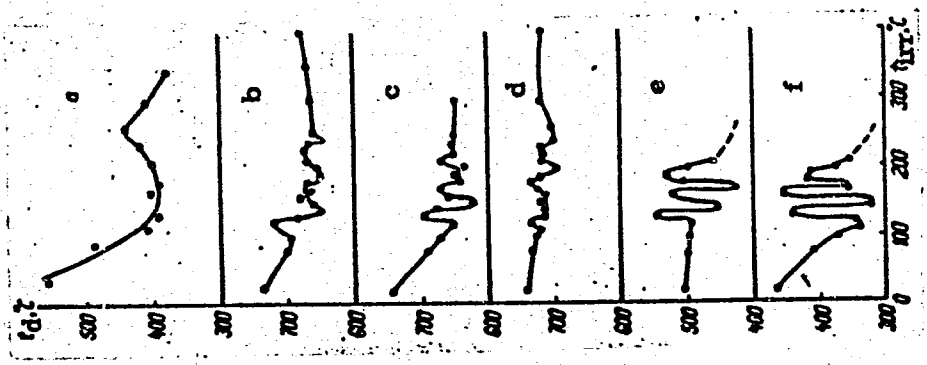

Fig. 1. The dependence of t_d on t_{irr} for glasses:
a - No 1; b - No 2; c - No 4; d - No 6; e - No 9, f - No 10.

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L 11848-66

ACC NR: AT6000508

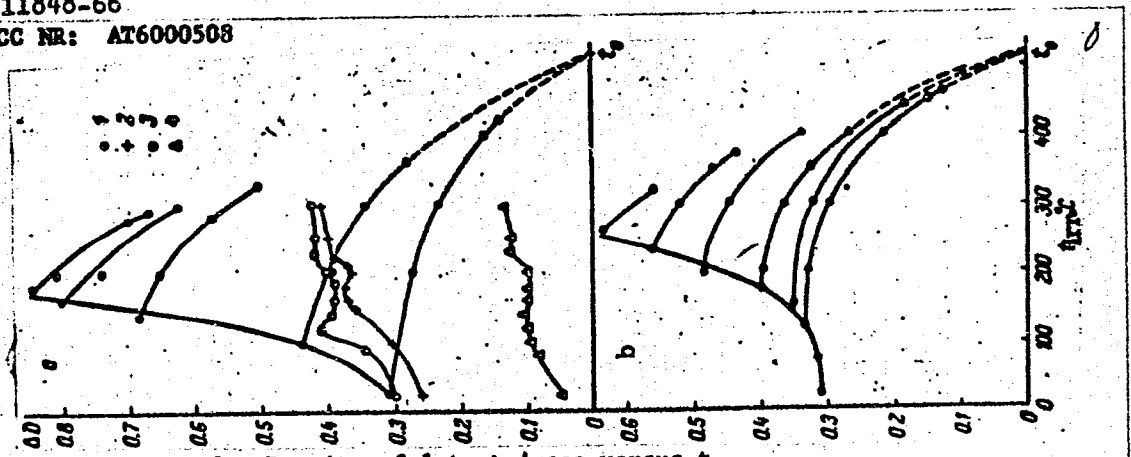

Fig. 2. Density of latent image versus t_{irr}. a - curves 1, 2, 3, 4 for glasses 7, 1, 2, 3, respectively. Thin lines indicate the decay of the latent image down to t_d for glass 7 (some of the curves are extended by dashed lines to t_o); b - the same for glass 5. Thickness: 0.4 mm.

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L 11848-66
ACC NR: AT6000508

becomes supersaturated and condenses in the form of colloidal particles. In Au containing glasses the t_d versus t_{irr} dependence is then much less pronounced because of a much smaller mobility of gold atoms. Orig. art. has: 3 formulas, 3 figures, and 1 table.

SUB CODE: 11, 20 / SUBM DATE: 22May65 / ORIG REF: 004

jw
Card 5/5

BORGOLOV, I.B.

Prospecting methods for sulfide copper-nickel deposits. Izv. vys. ucheb.zav.; geol. i raz. 7 no.[illegible] '64.

(MIRA 18:7)

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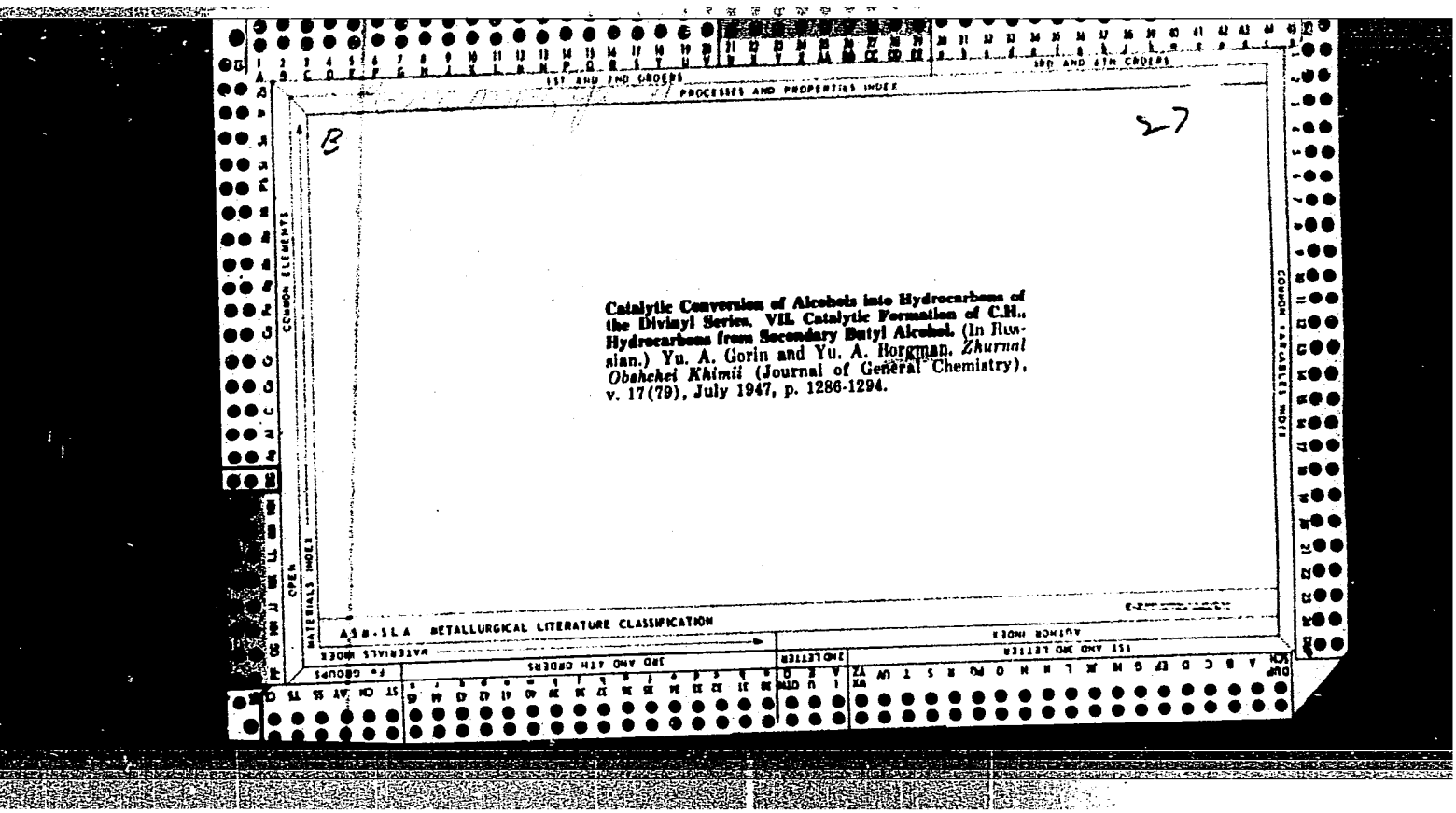

BORGORODITSKIY, N. P., PROF PA 15/49T18

USSR/Electricity Jul 48
Insulators, High Frequency

"High-Voltage Insulation for High-Frequency Installations," Prof N. P. Bogoroditskiy, Dr Tech Sci and A. V. Dmitriyev, Engr, Leningrad Elec Eng Inst imeni Ul'yanov, 4 pp

"Elektrichestvo" No 7

Treats subject under: (1) discharge in air at high frequencies; (2) construction of high-voltage, high-frequency insulators; (3) utilization of industrial frequency for testing high-frequency insulators.

15/49T18

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TUDORANU, Gh., prof.; BERNEAGA, Ortansa, dr.; TURCANU, H., dr.; NEGOITA, Margereta, dr.; VACARU, Olimpia, dr.; MARINESCU, C., dr.; BORGOVAN, Lucia, dr.

Experience of the Medical Clinic I of Iasi in the problem of bone marrow transplantation. Med. intern. 14 no.10:1245-1251 O '62.

1. Lucrare efectuata la Clinica I medicala Iasi si Centrul de transfuzie Iasi.
(BONE MARROW) (LEUKOPENIA) (BONE MARROW DISEASES)
(RADIATION INJURY) (LEUKEMIA)

MARINA, I., prokuror (Irkutsk); SALEY, A.; KISELEV, P., dispetcher; KOVESHNIKOV, P. (Rostovskaya obl., Belokalitvinskiy rayon); BORGUL', A.; SUPRUN, A. (Khar'kov); MUSAYEV, A.

Readers suggest, advise and criticize. Sov. profsoiuzy 19 no.13:36-37 Jl '63. (MIRA 16:9)

1. Chlen fabrichnogo komiteta Grodnenskogo tonkosukonnogo kombinata (for Saley). 2. Makeyevskiy koksokhimicheskiy zavod (for Kiselev). 3. Predsedatel' rabochego komiteta Vedenovskogo sovkhoza, Kokchetavskaya obl. (for Borgul'). 4. Vagonnoye depo stantsii Kirovabad Azerbaydzhanskoy zheleznoy dorogi (for Musayev).
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(Technicka Praca, Vol. 9, No. 5, May 1957, Bratislava, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

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BORHEGYI, Laszlo, dr.; SZEPLAKI, Sandor, dr.; DOZSAN, Gabriella, dr.

Two cases of strongyloidiasis stercoralis. Orv. hetil. 95 no.27: 738-741 4 July 54.

1. A Magyar Nephadsereg Egeszsegugyi Szolgalatanak kozlemenye
(STRONGYLOIDIASIS, case reports)

BORHEGYI, Laszlo

SURNAME (in caps); Given Names

Country: Hungary

Academic Degrees: Dr

Affiliation: The Health Service of the Hungarian People's Army (A Magyar Nephadsereg Egeszsegugyi Szolgalata)

Source: Budapest, Orvoskepzes, Vol XXXVI, No 6, Dec 61, pp 428-448.

Data: " Hazards and Side Effects of Modern Drug Therapy."

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Recent clinical data on Ehlers-Danlos syndrome (cutis laxa hyperelastica). Orv.hetil. 102 no.4:171-173 22 Ja'61.

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Acute renal tubular insufficiency due to drug allergy. Orv. hetil. 102 no.12:547-550 19 Mr '61.

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(ACUTE RENAL FAILURE etiol) (PENICILLIN toxicol)
(SULFONAMINDES toxicol)

BORHEGYI, Laszlo, dr.

On the question of penicillin shock. Fulorrgegyogyaszat 8 no.3: 120-121 S '62.

1. A Magyar Nephadsereg Egeszsegugyi Szolgalata.
(PENICILLIN TOXICOLOGY) (CORTISONE) (EPINEPHRINE)
(PENICILLINASE)

NEMETH, Istvan, Dr, physician-major, BORHEGYI, Laszlo, Dr, physician-colonel, HAJDU, Bela, Dr; [affiliations not given].

"Experiences During 10 Years of Practice Involving Diseases of the Coronaries."

Budapest, Honvedorvos, Vol XVIII, No 2, Apr-Jun 66, pages 89-105.

Abstract: [Authors' Hungarian summary] The patient material evaluated involves career people in the military service who were treated at the Medical Ward of the I. Army Hospital between 1954-64 for cardiovascular diseases. The distribution of various forms of disease with respect to age, the period between the first symptoms and the development of disease, the relationships between individual diseases and hypertensive disease, the role of endogenous and exogenous factors in susceptibility, the different aspects of survival following cardiac infarct as well as the problems of therapy especially that of anticoagulant treatment and rehabilitation were examined. Special attention was paid to the question whether professional soldiers can be considered more prone to cardiovascular diseases than the civilian population as reflected by reported studies of the latter. On the basis of the observations, attention is called to the increasing importance of this group of diseases and to the expected increase in the number of cardiovascular cases within the military services because of age considerations. The importance of prevention and the necessity of the setting up of uniform preventive, diagnostic and therapeutic principles at all levels of the military health services are stressed. 8 Eastern European, 16 Western references.

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Antibiotics

BORHEGYI, Laszlo, Dr, physician-lieutenant colonel; [affiliation not given].

"Recent Results of Antibiotic Research."

Budapest, Honvedorvos, Vol XVIII, No 3, Jul-Sep 66, pages 179-193.

Abstract: [Author's Hungarian summary] A brief summary of the advances made in chemotherapy during the past three decades is followed by a brief report on the more recent results in antibiotic research. Among the ototoxic and nephrotoxic antibiotics, the dangers of streptomycin treatment and the principles of a sensible therapy are discussed. Some lesser known side effects of the tetracyclines and the most important information related to kanamycin therapy are described briefly. The field of indications for use of the new, half-synthetic penicillins, the mode of their application, their favorable and unfavorable properties are discussed in somewhat greater detail. The possibility of allergic reactions in response to the new preparations is stressed. In conclusion, the experiences gained in the use of cephalosporins, closely related to penicillin in their chemical structure, are reported and the possible future importance of these more recent compounds is pointed out. 15 Eastern European, 19 Western references.

1/1

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Vol. 2, No. 3/4, 1956
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Budapest, Hungary

So: East European Accession, Vol. 5, No. 5, May 1956